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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,563

10/11/2005

Vidar Snekkenes

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FASTH LAW OFFICES (ROLF FASTH)  
26 PINECREST PLAZA, SUITE 2  
SOUTHERN PINES, NC 28387-4301

EXAMINER

CALANDRA, ANTHONY J

ART UNIT

PAPER NUMBER

4128

MAIL DATE

DELIVERY MODE

12/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,563	<b>Applicant(s)</b> SNEKKENES ET AL.	
	<b>Examiner</b> ANTHONY J. CALANDRA	<b>Art Unit</b> 4128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Detailed Office Action***

1. The communication dated 10/11/2005 has been entered and fully considered.
2. Claims 1-8 are currently pending.

***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Objections***

4. Claim 2 is objected to because of the following informalities: The word ‘pressurised’ should be changed to “pressurized”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,436,586 ELMORE, hereinafter ELMORE.
7. As for claim 1, ELMORE discloses a method for the pre-treatment of chips [abstract], comprising feeding the chips to a sulphite cooking process [acid prehydrolysis prior to kraft cooking, Figure 1], where the chips are heated with steam in a steam treatment [Figure 1 steaming vessel (13)] and thereafter formed into a slurry with an alkali impregnation fluid before cooking in a digester [white liquor is added to the chips (47), where white liquor is an

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alkali, prior to the chips entering the digester; Figure 1], adding an acidic fluid to the chips in association with the steam treatment in an amount that gives the chips at least a five-fold increase in an ionic concentration of hydrogen ions at the end of steam treatment compared to steam treatment without adding the acidic fluid and reducing the pH of the chips by at least 0.5 units [H<sub>2</sub>SO<sub>4</sub> is added to the chip and the final pH is 1.5; see e.g. Table 1 cook #3; the pH of water in the chips which is displaced by acid is between 6-7 thus the acid lowered the pH by at least 4, further pH is a logarithmic scale which measures hydrogen ion concentration, a lowering of pH by 4 is greater than a five fold increase in hydrogen ions].

8. As for claim 2, ELMORE teaches that the acid hydrolysis takes in the top of an impregnation vessel [see e.g. Figure 1 (23)]. ELMORE further teaches that the hydrolysis takes place at a pressure of 200 psig [see e.g. column 6 line 50]. ELMORE further discloses that the pH of the treatment is less than 4 [Table 1, experiment 3].

9. As for claim 4, ELMORE discloses that the liquor to wood ratio of 2:1 which does not exceed the instant claim ratio of 2:1 [see e.g. column 6 lines 42-45].

10. As for claim 5, white liquor [which is a sulfide rich liquor] is added to the to the chip circulation line (46) before the chips are transported to the kraft digester [see e.g. figure 1].

11. As for claims 6, ELMORE teaches that white liquor is used in the Kraft cook [Figure 1], ELMORE also that it is a traditional kraft cook [column 6 lines 9-15]. Normal white liquor has a sulfidity of approximately 1 mol/liter, as evidenced by applicants specification [see e.g. pg 5 lines 25-30].

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,436,586 ELMORE, hereinafter ELMORE, as applied to claims 1, 2, 4-6 above, in view of ***Chemical Pulping*** by GULLICHSEN, hereinafter GULLICHSEN.

As for claim 3, ELMORE teaches an acid pretreatment process in which acid is added (24) to the feed system impregnation vessel and digester. Some of the acid gets added by way of circulation through (16) to the steaming vessel 13 and chip chute 14. A steaming vessel can be run at pressures up to 15 psig or 1 bar which is higher than the claimed range of 0 to 0.5 bar. GULLICHSEN discloses that steaming vessels can be replaced by a single atmospheric steaming stage [see e.g. pg. A 563 section 5.3]. Since the acid of ELMORE is added first to the feed system the acid treatment would first occur at atmospheric pressure if the low pressure feeder and steaming vessel were removed. At the time of the invention it would have been obvious to a

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person of ordinary skill in the art to replace the steaming vessel of ELMORE with the Lo-level feed system of GULLICHSEN. A person of ordinary skill in the art would have been motivated to replace the steaming vessel with the lo-level feed system since the removal of the steaming vessel leads to improved cooking uniformity, increased yield and increased strength [see e.g. GULLICHSEN, pg A565 paragraph 6].

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,436,586 ELMORE, hereinafter ELMORE, as applied to claims 1, 2, 4-6 above, in view of U.S. Patent 6,203,662 SNEKKENES et al., hereinafter SNEKKENES et al..

16. As for claims 7, ELMORE teaches that white liquor is used in the Kraft cook [Figure 1], ELMORE also that it is a traditional kraft cook [column 6 lines 9-15]. The NaOH concentration of the white liquor is greater than 0.75 mol/liter. SNEKKENES et al. teaches that a substantial amount of withdrawn liquor should be added to the beginning of the impregnation zone [column 1 lines 54-57]. This liquor is spent and the alkali content of the impregnation is 30 g/l, which is equivalent to 0.625 moles/liter [20 grams \* 1 mole/32 grams]. The sulphidity of the spent liquor would obviously be at least 0.15 moles/liter because the references provide substantially the disclosed process steps. At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute the improved kraft cooking process of SNEKKENES et al. for the traditional kraft process of ELMORE, which is subsequent to the acidic pretreatment of ELMORE. A person of ordinary skill in the art would be motivated to make this substitution because this cooking process optimizes chemical consumption, gives good heat economy and achieves good pulp properties over traditional Kraft cooking [see e.g. SNEKKENES et al. abstract].

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17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,436,586 ELMORE, hereinafter ELMORE.

As for claim 8, ELMORE teaches the acidic pre-treatment temperatures of 90 and 105 degrees C which are 2 specific points which lie in the range of 80-120 degrees C [see e.g. Table 1]. ELMORE also teaches the residence times of 45 and 60 minutes [see e.g. Table 1]. ELMORE further recognizes that the residence time is highly adjustable depending on the makeup of the wood chips, capacity of the subsequent digester, etcetera [see e.g. column 5 lines 32-36]. At the time of invention it would have been obvious to a person of ordinary skill in the art to optimize the residence time of the acidic pretreatment to 1-20 minutes to effect properties such as hemicellulose yield in the digester [see MPEP 2144.05 II].

### ***Conclusion***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571)270-5124. The examiner can normally be reached on Monday through Friday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on (571) 272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Barbara L. Gilliam/  
Supervisory Patent Examiner, Art Unit  
4128

AJC